

IFO AUDIT GUIDE

Lifting Devices and Equipment

TABLE OF REFERENCES

Document Number	Title
NASA-STD-8719.9	Standard for Lifting Devices and Equipment

<i>Lifting Devices and Equipment</i>			
ATTRIBUTE	SOURCE	SAT/ UNSAT	REMARK/COMMENT
A. Management 1. Has the need for compliance with NASA-STD-8719.9 at contractor installations performing NASA work been evaluated? a. Has it been made a contractual requirement where deemed necessary? b. How was this determined? c. What oversight functions does the Center perform to ensure that the contractor is in compliance with the standard? d. Are oversight responsibilities clearly defined and documented? e. Are results of oversight activities documented?	NASA-STD-8719.9, Para. 1.3		
2. Does the Center periodically review changes to codes/standards and evaluate the need to update existing equipment? a. How is this accomplished? b. Is there a documented process? c. Are there examples where this occurred?	NASA-STD-8719.9, Para. 1.4		
3. Does the state in which the Center resides have requirements stricter than Federal OSHA requirements? a. Are these requirements appropriately reflected in Center procedures and operations? b. How does the Center keep up to date with Federal and state OSHA requirements that apply to their operations? c. How are changes communicated?	NASA-STD-8719.9, Para. 1.4		

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<p>4. Has a Lifting Device and Equipment (LDE) Committee been established at the Center?</p> <p>a. Are all activities (including contractor operations) within the Center who are involved with LDE represented on the committee?</p> <p>b. How often does the committee meet?</p> <p>c. Are meeting records/minutes documented?</p> <p>d. How are issues/problems reported to the committee, tracked, and resolved?</p>	NASA-STD-8719.9 Para 1.8.2		
<p>5. Has a Lifting Device and Equipment Manager (LDEM) and an alternate designated in writing?</p> <p>a. Does the LDEM and alternate have appropriate backgrounds in lifting devices?</p> <p>b. Are the LDEM's duties and responsibilities clearly identified and documented?</p> <p>c. Does the LDEM's responsibilities include both facility and contractor operations?</p> <p>d. How does the LDEM communicate issues learned during NASA LDE Committee meetings to appropriate personnel at their facility?</p> <p>e. How are issues encountered at the LDEM's Center communicated to NASA Headquarters or other facilities?</p>	NASA-STD-8719.9 Para 1.8.1		
<p>6. Has the Center developed a process to identify critical lifting operations and LDE that must meet critical lift requirements?</p> <p>a. Is it documented and approved by the LDEM?</p>	NASA-STD-8719.9, Para. 1.5.1.a		

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<p>7. Have specific written procedures been prepared for all critical lifts?</p> <p>a. How often are these procedures reviewed/updated?</p> <p>b. How are changes to these procedures implemented?</p> <p>c. Who approves these procedures and changes to them?</p>	NASA-STD-8719.9, Para. 1.5.1.c		
<p>8. Has a recognized safety hazard analysis (e.g., fault tree analysis, FMEA, OSHA) been performed on LDE used for critical lifts?</p> <p>a. Does the analysis, as a minimum:</p> <p>(1) Determine potential sources of danger?</p> <p>(2) Identify failure modes?</p> <p>(3) Recommend resolutions and a system of risk acceptance for those conditions that could cause loss of life, personal injury, and loss of or damage to the LDE, facility, or load?</p> <p>b. Is the analysis updated to reflect changes in operation or configuration?</p>	NASA-STD-8719.9, Paras. 4.2.3; 5.2.3, 6.2.3, 8.2.3, 9.2.3, 11.2.3, 12.2.3, 13.2.3		
<p>9. Has a data collection system been established to support NASA-wide lifting device trend data analysis?</p> <p>a. How is this data used?</p>	NASA-STD-8719.9, Para. 1.6		
<p>B. Personnel Certification</p> <p>1. Has an LDE training, examination, and licensing program been established?</p> <p>a. If there is not a training program, are LDE operators trained and certified by a recognized LDE certification organization?</p> <p>b. Is the operator certification program reviewed at least annually to assure that the contents, training material, testing, and examination elements are up-to-date with current methods and techniques?</p> <p>c. Are lessons learned adequately included in the program?</p>	NASA-STD-8719.9, Paras 4.6.1, 5.6.1, 6.6.1, 8.6.1, 9.6, 10.6.1, 11.6, 12.6		

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<p>2. Are only certified (licensed) and trained operators authorized to use/operate LDE?</p> <p>a. What process is used to ensure this?</p> <p>b. How do supervisors identify who is authorized and who is not when assigning work?</p> <p>c. Are records of all certification and training maintained current?</p> <p>d. Do certification and training records include both Center and contractor personnel?</p>	NASA-STD-8719.9, Paras 4.6.1, 5.6.1, 6.6.1, 8.6.1, 9.6, 10.6.1, 11.6, 12.6, 13.6		
<p>3. Have operators certified to perform critical lifts been trained in the specific hazards and special procedures associated with the lift?</p> <p>a. How is this documented?</p> <p>b. Are operators required to demonstrate proficiency and finesse with LDE using a test load?</p> <p>c. How do supervisors know which operators are certified to perform critical lifts when assigning work?</p>	NASA-STD-8719.9, Paras 4.6.2.b, 5.6.2.b, 6.6.2.b		
<p>4. How does the Center ensure that personnel performing Nondestructive Testing (NDT) of LDE are qualified and certified?</p> <p>a. Have special training or certification criteria that these individuals require been identified?</p> <p>b. Are training records and status of certifications maintained for NDT personnel?</p>	NASA-STD-8719.9 Para 1.9		
<p>C. Labeling/Tagging</p> <p>1. Is the rated load/applicable capacity rating of all Lifting Devices and Equipment (LDE) plainly marked in the appropriate location?</p> <p>a. Who applies these markings?</p>	NASA-STD-8719.9, Paras. 4.2.2.a; 5.2.2.a, 6.2.2.a, 8.2.2.a, 9.2.2.a, 11.2.2.a, 12.2.2.a, 13.2.2.a		

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2. Is LDE appropriately marked to distinguish that it is qualified for critical lifts?	NASA-STD-8719.9, Paras. 4.2.2.b; 5.2.2.b, 6.2.2.b, 8.2.2.b, 10.2.2, 12.2.2.a, 13.2.2.a		
3. Is there a standard system of labeling used throughout the installation? a. What training is conducted to ensure the labeling system is understood by users?	NASA-STD-8719.9, Paras. 4.2.2.c; 5.2.2.c, 6.2.2.c, 8.2.2.c, 9.2.2.b, 11.2.2.b, 12.2.2.b, 13.2.2.f		
4. Is a standard lockout/tagout system used throughout the installation to indicate equipment that is not to be used? a. Does the system contain record of all equipment that is not to be used? b. What training is conducted on the lockout/tagout system? c. Is compliance with the system reviewed periodically?	NASA-STD-8719.9, Paras. 4.2.2.d; 5.2.2.d, 6.2.2.d, 8.2.2.d, 9.2.2.c, 11.2.2.c, 12.2.2.c, 13.2.2.g		
5. Are certification/recertification tags used? a. Are they permanently affixed? b. Do they identify the equipment and the date of the next required certification test or test expiration date? c. What is done when a tag is found to be missing?	NASA-STD-8719.9, Paras. 4.2.2.e; 5.2.2.e, 6.2.2.e, 8.2.2.e, 9.2.2.d, 10.2.2, 11.2.2.d, 12.2.2.d, 13.2.2.h		
D. Testing 1. Is testing of LDE conducted in accordance with the requirements of NASA-STD-8719.9, applicable industry standards, or OSHA requirements, as applicable? a. Is evidence of this documented?	NASA-STD-8719.9, Paras. 4.3, 5.3, 6.3, 7.3, 8.3, 9.3, 10.3, 11.3, 12.3, 13.3		

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2. Are proof load tests, periodic load tests, and operational tests performed on new or repaired LDE prior to first use when required? <ul style="list-style-type: none"> a. How is this ensured? b. How is it determined which repairs necessitate retesting? c. Who decides? 	NASA-STD-8719.9, Paras. 4.3; 5.3, 6.3, 9.3, 11.3, 13.3		
3. Is LDE used frequently for critical lifts load tested annually? <ul style="list-style-type: none"> a. What triggers annual tests to be conducted? b. How do personnel easily identify which LDE is used frequently? c. Is there a database that manages test expiration dates? 	NASA-STD-8719.9, Paras. 4.3; 5.3, 6.3, 9.3, 11.3, 13.3		
4. Is LDE used infrequently for critical lifts load tested before the critical lift if it has been more than a year since the last test? <ul style="list-style-type: none"> a. How do personnel easily identify which LDE is used infrequently? 	NASA-STD-8719.9, Paras. 4.3; 5.3, 6.3		
5. Are tests performed by qualified personnel? <ul style="list-style-type: none"> a. What training/qualifications apply? b. How are qualifications tracked? c. How do supervisors/employees know if qualifications are valid/current? 	NASA-STD-8719.9, Paras. 4.3; 5.3, 6.3, 8.3, 9.3, 10.3, 11.3, 12.3, 13.2.2.g		
6. Is inspection conducted after testing? <ul style="list-style-type: none"> a. How is this ensured? b. Who is responsible for conducting inspections? 	NASA-STD-8719.9, Paras. 4.3; 5.3, 6.3, 8.3, 9.3, 10.3, 11.3, 12.3, 13.3		

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<p>7. Are written, dated, and signed test reports prepared?</p> <ul style="list-style-type: none"> a. Are inadequacies documented? b. Are hazards corrected prior to further use? c. Are test reports reviewed to ensure adequacy of the test and results? <p>(1) Who approves them?</p>	NASA-STD-8719.9, Paras. 4.3.4, 5.3.4, 6.3.4, 7.3, 8.3.5, 9.3.4, 10.3.5, 11.3.4, 12.3.4, 13.3.4		
<p>8. Are unsafe test discrepancies documented and corrected?</p> <ul style="list-style-type: none"> a. What is the process used to ensure that this occurs? b. Is the process documented? 	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
<p>9. Is LDE found in an unsafe operating condition removed from service, tagged out, and not used until repaired?</p> <ul style="list-style-type: none"> a. What is the process used to ensure that this occurs? b. Is the process documented? c. What training has the Center done in this area? 	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
<p>E. Inspections</p> <p>1. Are inspections of LDE performed in accordance with the requirements of NASA-STD-8719.9, industry standards, or manufacturers recommendations?</p> <ul style="list-style-type: none"> a. Are inadequacies documented and tagged out if determined to be a hazard? b. Are they performed by qualified personnel according to approved technical procedures? <ul style="list-style-type: none"> (1) What training/qualifications apply? (2) How are qualifications tracked? (3) How do supervisors/employees know if qualifications are valid/current? 	NASA-STD-8719.9, Paras. 4.4.1, 5.4.1, 6.4.1, 7.4.1, 8.4.1, 9.4.1, 10.4.1, 11.4.1, 12.4.1, 13.4.1		

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2. Is new, extensively repaired, or modified LDE given daily and periodic inspections prior to first use? <ul style="list-style-type: none"> a. How is this ensured? b. How is it determined which repairs necessitate inspection? c. Who decides? 	NASA-STD-8719.9, Paras. 4.4.2, 5.4.2, 6.4.2, 8.4.2, 9.4.2, 10.4.2, 11.4.2, 12.4.2, 13.4.2,		
3. Is LDE in regular service given daily and periodic inspections? <ul style="list-style-type: none"> a. Are idle and standby LDE given daily and periodic inspections prior to first use unless inspections were performed at required intervals and recorded during the idle/standby period? b. How is idle/standby LDE differentiated between LDE in regular service? 	NASA-STD-8719.9, Paras. 4.4.3, 5.4.3, 6.4.3, 7.4.1, 8.4.3, 9.4.3, 10.4.3, 11.4.3, 12.4.3, 13.4.3		
4. Are daily inspections documented by the certified operator? <ul style="list-style-type: none"> a. Do inspections cover required attributes? 	NASA-STD-8719.9, Paras. 4.4.4, 5.4.4, 6.4.4, 7.4.2, 8.4.4, 9.4.4, 10.4.4, 11.4.4, 12.4.4, 13.4.4		
5. Are intervals of formal periodic inspections determined based on activity, severity of service, environment and criticality? <ul style="list-style-type: none"> b. Do inspections cover required attributes? 	NASA-STD-8719.9, Paras. 4.4.5, 5.4.5, 6.4.5, 7.4.3, 8.4.5, 9.4.5, 10.4.5, 11.4.5, 12.4.5, 13.4.5		
6. Are written, dated, and signed inspection reports prepared by qualified, authorized personnel after each formal periodic inspection? <ul style="list-style-type: none"> a. Are inspection reports reviewed to ensure adequacy of the inspection and results? <ul style="list-style-type: none"> (1) Who approves them? 	NASA-STD-8719.9, Paras. 4.4.7, 5.4.7, 6.4.7, 7.4.6, 9.4.7, 10.4.7, 11.4.7, 12.4.7		

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7. Are unsafe inspection discrepancies documented and corrected? a. What is the process used to ensure that this occurs? b. Is the process documented?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
8. Is LDE found in an unsafe operating condition removed from service, tagged out, and not used until repaired? a. What is the process used to ensure that this occurs? b. Is the process documented? c. What training has the Center done in this area?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
F. Operations 1. Is LDE operated in accordance with NASA-STD-8719.9, manufacturers recommendations, or industry standards? a. How is this ensured?	NASA-STD-8719.9, Paras 4.7, 5.7, 6.7, 9.7, 10.7, 12.7.1, 13.7		
2. For LDE requiring them, are there approved general operating procedures describing operation, emergency steps, communications requirements, and special requirements including checklists and inspection requirements? a. Is there a formal system for review, approval, and update of these procedures? b. Are there emergency procedures for contingency actions such as power loss, brake failure, etc.?	NASA-STD-8719.9, Paras 4.7.a, 5.7.b, 12.7.1.a		
3. Have operations been analyzed for hazards when required? a. How are these documented and handled?	NASA-STD-8719.9, Paras 4.7.b, 5.7.b, 6.7, 12.7.1.b		
4. Does the operator examine the recertification test tags/documentation before use of LDE to ensure that it is within inspection and testing intervals? a. Is this requirement documented?	NASA-STD-8719.9, Paras 4.7.h, 5.7.k, 6.7.k, 8.7.d, 9.7.g, 10.7.l, 11.7.f, 12.7.1.f, 13.7.e		

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5. Does the operator perform a preoperational check before use of the LDE to demonstrate operational readiness when required? a. Is this requirement documented?	NASA-STD-8719.9, Paras 4.7.i, 5.7.l, 6.7.c/h, 9.7.c, 11.7.c, 12.7.1.c, 13.7.b		
6. During critical lifts, is one person present (NASA or contractor) that is designated as responsible for the safety of the operations? a. Is this documented in a Center procedure? b. Have special training or certification criteria that these individuals require been identified? c. Are training records maintained with the current status of these qualified individuals?	NASA-STD-8719.9, Para. 1.5.1.d		
G. Maintenance 1. Has an LDE maintenance program based on manufacturers' recommendations been established? a. Does it integrate proactive, reactive, preventive, and predictive maintenance?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
2. Are maintenance procedures established and maintained? a. Who approves these procedures? b. How are changes to maintenance procedures communicated to personnel, implemented, and incorporated into procedures? c. How are changes to higher-tier documents managed to ensure local maintenance procedures are revised accordingly?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
3. Is there a scheduling system for normal periodic maintenance items, adjustments, replacements, and repairs? a. What triggers periodic maintenance actions to occur?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		

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4. Are maintenance records maintained?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
5. Are repairs made by qualified personnel in accordance with the manufacturers' instructions? a. What process does the Center use to ensure that qualified personnel are used for repairs? b. Are the qualification requirements documented? c. Who approves maintenance/repairs?	NASA-STD-8719.9, Paras. 4.5, 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5		
H. Configuration Management 1. If mandatory requirements of NASA-STD-8719.9 cannot be met, are safety variances prepared in accordance with NPG 8715.3? a. Are there recent examples?	NASA-STD-8719.9, Para. 1.7.1		
2. Are variances of a Federal/State/local regulation approved by the Federal/State/local agency? a. Are there recent examples?	NASA-STD-8719.9, Para. 1.7.2		
3. Does waiver/deviation documentation include alternate or special criteria or procedures that will be imposed to ensure safe design and operations for those devices that do not meet applicable requirements?	NASA-STD-8719.9, Para. 1.3.3		